

Docket No. 000742C1

Serial No. 10/613,625

AMENDMENTS TO THE SPECIFICATION:

Please replace paragraph [0023] with the following amended paragraph:

[0023] ~~Figure-FIG.~~ 8 shows ~~the a prior art~~ framing structure of GSM cellular signals.

Please replace paragraph [0025] with the following amended paragraph:

[0025] In one approach described herein, mobile communication stations are utilized that contain (or are coupled to) GPS receivers which determine both time-of-day and position. ~~Figure-FIG.~~ 2 shows an example of such a mobile communication station. This GPS processing may be done in an autonomous mode, if the received signal is large, or with the aid of equipment in the infrastructure (servers) if the received signal-to-noise ratio is low. Note that server equipment (e.g. a location server shown in ~~Figure-FIG.~~ 7 and described further below) may also contribute to time-of-day and position determination in situations where improved performance is required (e.g. see U.S. Patents No. ~~5,945,94;~~ 5,945,944; No. 5,841,396; and No. 5,812,087).

Please replace paragraph [0030] with the following amended paragraph:

[0030] FIG. 4 shows one exemplary method according to an embodiment of the present invention. In operation 151 the mobile cellular system determines a representation of its time-of-day at the mobile cellular communication station. In one embodiment where a GPS receiver, such as GPS receiver 52, is used within a mobile cellular communication station, such as indicated by 50 shown in FIG. 2, GPS time may be obtained at the MS by reading GPS time off the GPS signals from the GPS satellites. Alternatively, a technique for determining time as described in U.S. Pat. No. 5, 812,087 may be utilized. In this approach, a sample of the GPS

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signals received at the mobile may be transmitted to a location server or to some other server where this record is processed to determine the time of receipt as described in U.S. Pat. No. 5,812,087. Further, the time-of-day in operation 151 may alternatively be computed using one of the various methods described in co-pending application Ser. No. 09/062,232 which was filed Apr. 16, 1998. The method shown in FIG. 4 continues in operation 153 in which the propagation delay between the mobile cellular communication station and a cellular basestation, such as the ~~cellular basestation~~ cellular basestation shown in FIG. 3, is determined. It will be appreciated that in certain of the embodiments described above, this operation is optional where the time determined in operation 151 has more error associated with it than the propagation delay. Also as noted above, this propagation delay may be determined by determining the position of the mobile (by means of processing the GPS signals) and determining the position of the cellular basestation. The distance between these two positions divided by the speed of light will determine the propagation delay in operation 153.

Please replace paragraph [0054] (i.e., replace the abstract) with the following amended paragraph:

[0054] Methods and apparatuses for establishing time at a first basestation, and synchronizing the first basestation with other synchronizing basestations in a cellular network. ~~One exemplary method performs time synchronization between at least two basestations, a first basestation and a second basestation, of a cellular communication system. In this exemplary method, a first time-of-day and a first geographical location of a first mobile cellular receiver station (MS) are determined from a first satellite positioning system (SPS) receiver which is co-located with the first MS, and the first time-of-day and first location are transmitted by the first MS to a first basestation which determines a time-of-day of the first basestation from the first time-of-day and first location and from a known location of the first basestation. Also in this exemplary method, a second time-of-day and a second geographical location of a second MS are determined from a second SPS receiver which is co-located with the second MS, and the second time-of-day and the second location are transmitted to a second basestation which determines a time-of-day of~~

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~~the second basestation from the second time of day and the second location and a known location of the second basestation.~~ The method may be performed using a mobile (cellular communication) station that includes a satellite position system receiver. One method comprises determining a location of the mobile station, determining a time indicator that represents a time-of-day at the mobile station, wherein the time indicator is determined relative to a signal available at the first basestation, transmitting at least one of the position information and location, and transmitting the time indicator from the mobile station. The time indicator and at least one of the position information and the location are used to establish a time at the first basestation such that the first basestation is synchronized to other basestations in the cellular communication system. Other methods and apparatuses are also described for synchronizing basestations in a cellular network.